

## ABSTRACT OF THE DISCLOSURE

The Fracture Trend Identification method is practiced by the Fracture Trend Identification software adapted for analyzing compressional 2-D seismic data in order to identify zones in a rock formation containing open, natural fractures. The Fracture Trend Identification method comprises one or two or more of the following steps: loading seismic data into the workstation software and visually quality controlling it, and then generating variance sections and reviewing them visually to identify faulting, identifying seismic events that corresponds to a formation of interest, extracting seismic attribute data from various zones of the seismic events, identifying frequency anomalies by interpreting the extracted seismic attribute data of the various zones of the seismic events, identifying and removing any potentially false positive frequency anomalies, and confirming any remaining ones of the anomalies not removed during the removing step and ranking the confirmed ones of the remaining anomalies. The method for identifying the seismic events that correspond to the formation of interest may comprise the extraction of a seismic wavelet and the performance of a well to seismic tie through the generation of the synthetic. The extraction of seismic attribute data from various zones may comprise the generation of the seismic Dominant Frequency attribute. Interpreting the extracted data for the various zones may comprise the posting of attribute values on a ribbon posting map and the examination of these values for rapid shifts in frequencies from higher to lower frequencies. The identification and removal of potential false positives may comprise the extraction and examination of a Dominant Frequency for a near surface seismic event and comparison with those of the zone(s) of interest. The confirmation of any remaining ones of the anomalies not removed during the removing step and ranking the confirmed ones of the remaining anomalies may comprise the extraction and examination of the seismic frequency spectrums from selected zones above, below, and including the frequency attenuation zones.